BY ORDER OF THE COMMANDER **AFSOC INSTRUCTION 11-203, VOLUME 6**
AIR FORCE SPECIAL OPERATIONS COMMAND **1 October 1998**

Flying Operations

AC-130U CONFIGURATION/MISSION PLANNING

COMPLIANCE WITH THIS INSTRUCTON IS MANDATORY. This instruction implements AFPD 11-2, *Aircraft Rules and Procedures*. This instruction establishes the basic configuration for AC-130U aircraft in regards to mission requirements. It applies to all organizations charged with configuring and operating AC-130U aircraft. It does not apply to the Air National Guard (ANG) or the Air Force Reserve (AFRC).

SUMMARY OF REVISIONS

This revision incorporates administrative changes; deletes crew table, life support equipment tables, and sample Form F. It also changes paragraph title from "deviations" to "modifications" (para 1.4), reduces distribution requirements (para 1.6), updates references (para 1.9), updates standard and additional equipment tables (tables 2.1 and 2.2), clarifies safety aisle requirements (para 4.2), updates standard weights (table 4.1); updates munitions packages (table 4.2), standardizes Form F instructions (chap 5), adds alternate fuel moment computation method (para 5.4).

Supercedes: AFSOCI 11-203 Volume 6, 1 Jun 95
OPR: HQ AFSOC/DOVS (SMSgt Robert Strollo)
Certified by: HQ AFSOC/DOV (Col Joe E. Tyner)
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Chapter 1

POLICY

1.1. General. This instruction establishes basic cargo compartment configuration, standard equipment, and its location aboard the AC-130U aircraft. Those who use this instruction should bear in mind that an infinite number of variations are available and that the cargo compartment limitations listed here are the most typically encountered on a daily basis.

1.2. Responsibilities. Personnel engaged in planning operations must consider the most appropriate configuration that will satisfy mission requirements and permit the minimum man-hours in configuring the aircraft. Units performing services on the AC-130U aircraft (e.g., maintenance, life support) are responsible for configuring the aircraft IAW this instruction as outlined in the mission directives.

***1.3. Standard Configuration Codes.** Use the following codes when referring to AC-130U cargo compartment configuration. The letter code will be followed by the number which identifies the configuration capability.

A-1 or A-2 – Standard Configurations
A-3 – Cargo Configuration
A-4 – Maximum Cargo Configuration

***1.4. Modifications.** The configuration codes of this instruction may, if necessary, require modifications for a specific mission. Each modification must be carefully evaluated prior to mission operation to ensure maximum flight safety and compatibility with aircraft equipment. Each mission directive will identify the basic configuration by code and the modification, if necessary, to satisfy mission requirements. For example, a Ferry/Depot input mission may require additional equipment installed/removed not in the A-3 (cargo) configuration.

1.5. Weight and Balance. Configuration and necessary equipment changes to conduct special operations missions affect the weight and balance of the aircraft. To standardize equipment and the location of the equipment, items shown in table 2.1 (standard equipment) will be included in the basic weight of the aircraft and remain on the aircraft except for maintenance and inspection. Equipment listed in table 2.1 (additional equipment) will be added as necessary and entered on DD Form 365-4 (weight and balance clearance form F). When preparing the Form F, the loadmaster enters the weights contained in the tables for the applicable configuration. Adjust the actual weight of items that vary from the data shown.

***NOTE:** When A-2/3/4 configurations are accomplished at a Forward Operating Location (FOL), the loadmaster will add or subtract the listed weight/moment from the last entry in the Chart C. Annotate the new weight/moment in block 1 of the Form F. The Quality Assurance (QA) update to the Chart C is not required. When configurations are changed at home station, QA is required to update the Chart C.

***1.6. Distribution.** Commanders are responsible for bringing this publication to the attention of all affected personnel. Maintain at least one copy in the squadron operations section, readily accessible to operations and aircrew personnel. Additional distribution will be, one each, as follows:

1.6.1. Staff operations, all levels.

1.6.2. Offices of aircrew standardization, all levels.

1.6.3. Command posts/operations.

1.6.4. Aircraft maintenance squadrons.

1.6.5. Dash 21 equipment section.

1.6.6. Quality Assurance section.
1.6.7. Life Support sections.

1.6.8. One located in the supplemental weight and balance handbook binder on each aircraft and the AFSOC/Deployment kits.

1.7. Revisions:

*1.7.1. All changes will consist of a revised page, which will be substituted for a corresponding page. Some minor write-in changes may be made, but these will be held to a minimum.

*1.7.2. Personnel at all echelons are encouraged to make recommendations to improve this regulation. Send proposed changes through channels to HQ AFSOC/DOV on AF Form 847 (Recommendation for Change of Publication), IAW AFI 11-215.

***1.8. Supplements.** Subordinate unit supplements to this instruction that change the basic policies, procedures, or formats prescribed herein are prohibited. Upon publication, forward two copies of all supplements to HQ AFSOC/DOV.

***1.9. References:**

T.O. 1C-130(A)U-1	T.O. 11A10-24-7
T.O. 1C-130(A)U-5	T.O. 11A10-26-7
T.O. 1C-130A-9	AFI 11-301
T.O. 1C-130A-21	AFI 21-101
T.O. 1-1B-40	AFP 76-2
T.O. 1-1B-50	AFSOCI 11-202
T.O. 1C-1-71	

Chapter 2

CONSOLIDATED EQUIPMENT TABLES

*2.1. General. Configure AC-130U aircraft with the equipment listed in Table 2.1. Include this equipment in the aircraft basic weight. Items listed in Table 2.2 are added, as necessary, to attain a specific configuration and/or comply with mission directives.

Table 2.1. Standard Equipment.

EQUIPMENT	QUANTITY	LOCATION
AAR-44 lens cover	1	Ramp miscellaneous storage bin
Air conditioning/heater plug	2	Ramp miscellaneous storage bin
APU exhaust plug	1	Ramp miscellaneous storage bin
Avfuels identiplate, Air Card	1 ea.	Stowed in single point refueling door
Axe, hand emergency	3	Installed IAW flight manual
Chain, tiedown 10,000 lb.	14	Stowage container at FS 780, Lt. side
Chain, tiedown 25,000 lb.	6	Stowage container at FS 780, Lt. side
Containers, liquid (2 gal)	2	Galley, FS 188
Cup, food warming	2	Galley, FS 188
Device, tiedown 10,000 lb.	7	Secured to stowage bar FS 780, Lt. side
Device, tiedown 25,000 lb.	4	Secured to stowage bar FS 780. Lt. side
Engine intake and exhaust plugs	4/4	Ramp miscellaneous storage bin
Extinguisher, fire	7	Installed IAW flight manual
Firefighters smoke mask	7	Attached to each portable oxygen bottle
Fluid, hydraulic	3 cases	Ramp fluids stowage box
Fuel tank drain tube	1	Lt. wheel well, side-wall
Ground wires	2	Ramp miscellaneous storage bin
Guard assembly, ramp/cargo door actuator	2/1	Ramp miscellaneous storage bin
Hand crank, landing gear and flaps	2	1 stowed forward of left wheel well, 1 inside the BMC FS 433 right side
Hook, Chain tiedown	1	Ramp miscellaneous storage bin
Interphone cords	35	
a. Pigtail cords	32	1 at each comm. drop.
b. 50 ft. cords	2	1 at FS 245, 1 at FS 737
c. 75 ft. maintenance cord	1	Aft of FS 245, Lt. side
Jack and tow fittings	2	Ramp miscellaneous storage bin
Jack pads	1 set	Ramp miscellaneous storage bin
Kit, first aid, aeronautical (small)	5	2 stowed on flight deck, 2 in CRC, 1 in BMC
Kit, first aid (large)	2	1 stowed on aft wall of CRC, 1 aft of 105mm

Ladder, maintenance	1	Stowed on top of 105mm ASHS
Latrine Curtain	1	Installed over latrine
Life rafts	2	Inboard wing well compartments
Liquid container, emergency (2 gal)	10	Lt. and Rt. fuselage area, FS 820
NOTE: Containers will be sanitized and filled with water prior to deploying to austere locations. While in use, the containers will be sanitized and filled with water every 30 days.		
Lock assembly, main landing gear	2	Ramp miscellaneous storage bin
Oil, engine	1 case	Ramp fluids stowage box
Oven	1	Galley, FS 188
Oxygen bottle, walk-around w/strap	7	Installed IAW Flight manual
Pitot covers	1 Set	Ramp miscellaneous storage bin
Rings, tiedown 25,000 lb.	2	Installed on Lt. side at FS 477 & 617
Rope, emergency escape	3	Installed aft of each overhead escape hatch
Seals, pressurization (40,105mm)	1 set	Ramp gun tool box
Straps, tiedown 5,000 lb.	10	Cargo door storage bin # 4
Sun visors	2	Stowed above pilot/copilot side windows
Wheel chocks	4	Ramp miscellaneous storage bin
Wrench, main landing gear, emergency extension	1	BMC, aft Lt. exterior wall

Table 2.2. Additional Equipment

EQUIPMENT	QUANTITY	LOCATION
Anti-exposure suit	21	Ramp life support bin (A/R)
Auxiliary ground loading ramps	A/R	A/R
Brass bags (40mm)	l set	A/R
Emergency escape breathing device (EEBD's)	3	Ramp life support bin
Gun box with 9mm guns	1	CRC, behind the cargo net (A/R)
Gun clearing tools (PVC pipe)	1	Stowed behind 105mm ASHS (A/R)
Harness, chest pack	23	Lt. wheel well, BMC exterior wall
Harness, restraint	2	1 on flight deck, 1 in life support bin
Life preserver, underarm, LPU-10/P	23	Ramp life support bin
Mission kit	1	A/R
Parachutes	23	Lt. wheel well, BMC exterior wall
Seat kits (MA-4)	21	Ramp life support bin
Static display equipment	l set	A/R
Survival vest	21	Ramp life support bin
Tool kit, Loadmasters	1	Ramp life support bin
Tool kit, Gunners	1	A/R
Water container (Igloo)	A/R	Stowed as loose equipment

Chapter 3

CONFIGURATION PLANS

***3.1. General.** This chapter contains basic cargo compartment configurations.

*3.1.1. Changes in configuration may affect the overall aircraft center of gravity (CG).

3.1.2. Drawings in this chapter are not drawn precisely to scale with respect to actual aircraft locations.

3.2. Legend of Configurations:

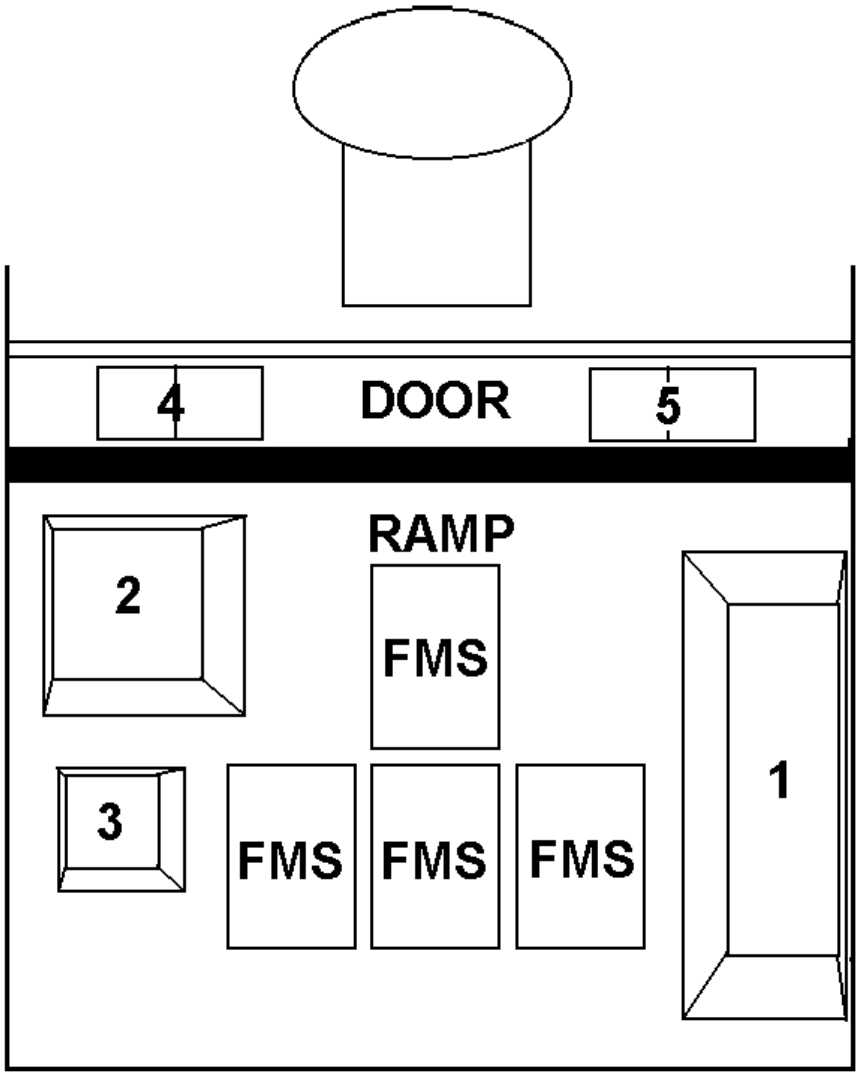
3.2.1. A-l. Standard configuration; provides 21 total seats, including 4 reclining seats inside CRC for crew rest.

3.2.2. A-2. Standard configuration; provides 19 total seats, including 2 reclining seats inside the CRC for crew rest.

3.2.3. A-3. Cargo configuration; provides 17 total seats and cargo stowage capability.

3.2.4. A-4. Maximum cargo configuration; provides 13 total seats for maximum cargo stowage capability.

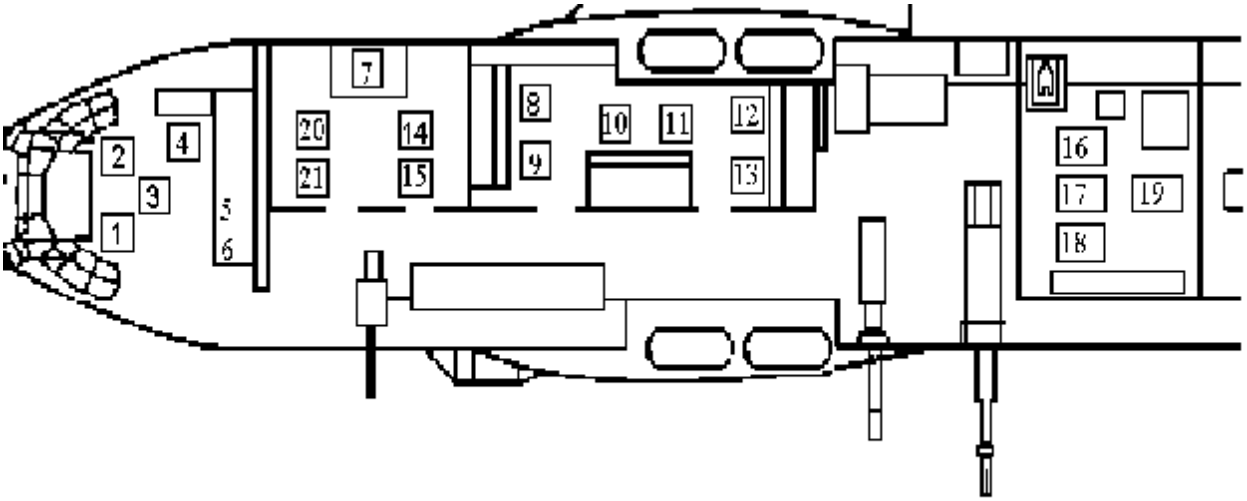
Figure 3.1. Cargo Ramp/Door Stowage Configuration



1. Ramp Storage Bin - Life support equipment.
2. Ramp Storage Bin - Miscellaneous storage. Engine intake/exhaust covers, APU exhaust plug, cargo door down lock, ramp actuator guard assembly, jack and tow fittings, air condintioning/heater plugs, lock assembly (MLG), wheel chocks.
3. Ramp Storage Bin - Fluids storage.
4. Door Storage Bin - 5,000 lb. tiedown straps (10ea).
5. Door Storage Bin - Miscellaneous.

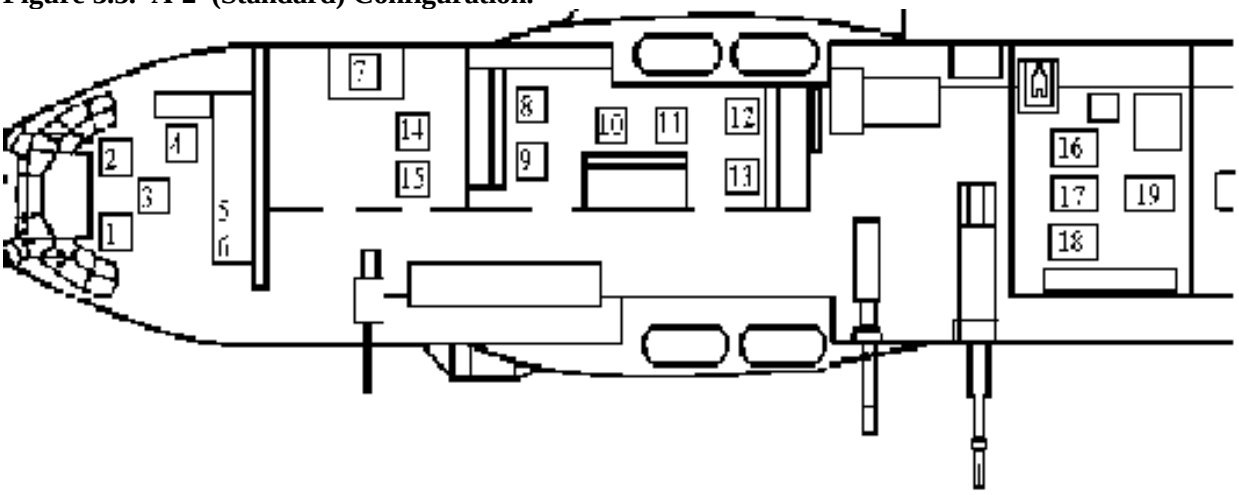
*Floor mounted seats (FMS) may be removed as required and stowed behind the 105mm ASHS.

Figure 3.2. A-l (Standard) Configuration.



1. Provides 21 total seats. 17 seats and 4 reclining seats inside the CRC for crew rest facilities.

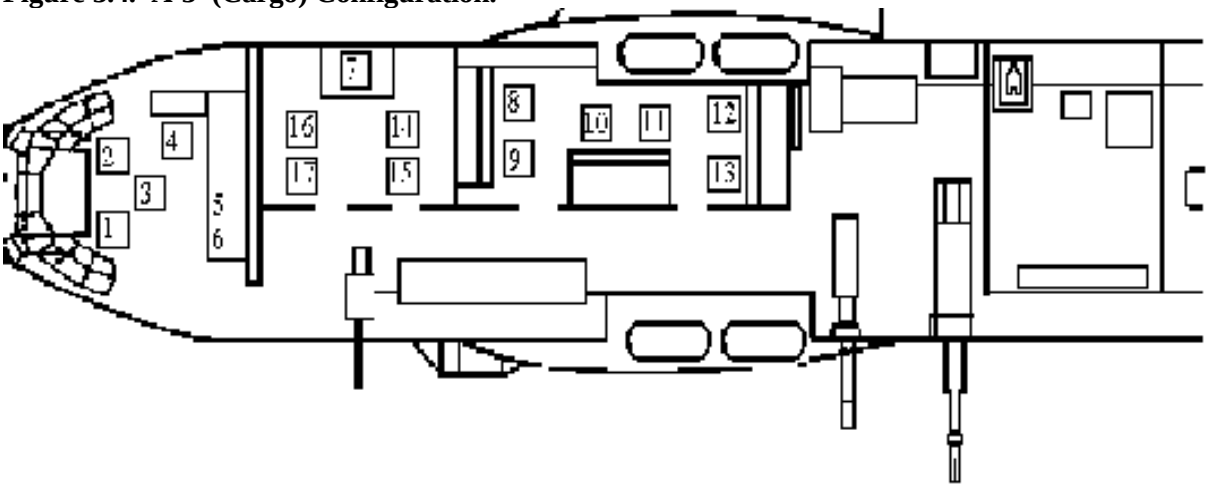
Figure 3.3. A-2 (Standard) Configuration.



1. Provides 19 total seats. 17 seats and 2 reclining seats installed in the aft compartment of the CRC.
2. Two forward seats in the CRC removed.

NOTE: Total weight and moment change: Weight: -154 Moment: -42

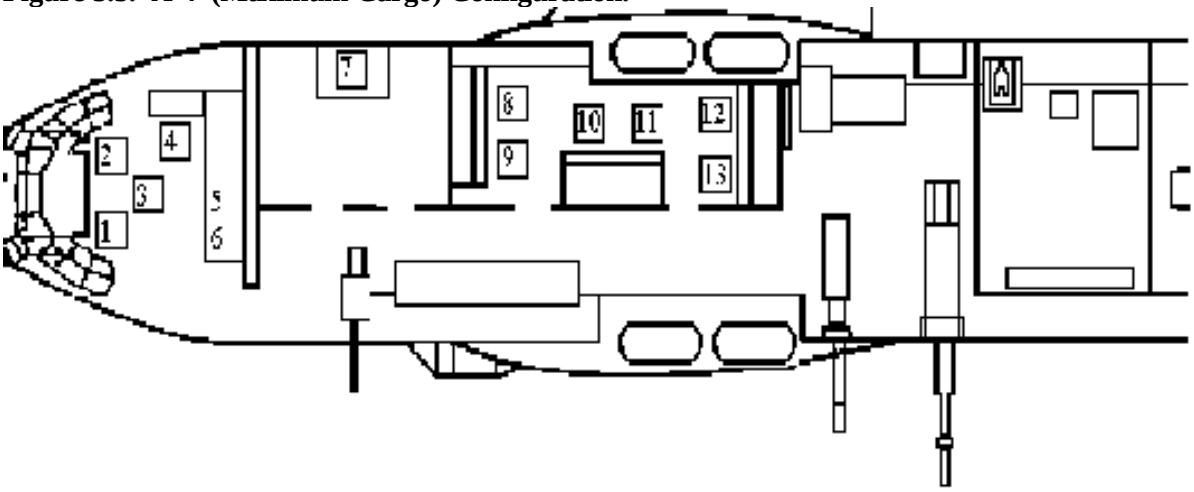
Figure 3.4. A-3 (Cargo) Configuration.



1. Provides 17 total seats. 13 seats and 4 reclining seats inside the CRC. Provides cargo stowage capability.
2. Ramp seats are removed.
3. Ramp "D" rings are installed.

NOTE: Total weight and moment change: Weight: -132 Moment: -104

Figure 3.5. A-4 (Maximum Cargo) Configuration.



1. Provides 13 total seats. The 4 reclining seats inside CRC and the ramp seats are removed. Provides the maximum cargo stowage capability.
2. Ramp "D" rings are installed.

NOTE: Total weight and moment change: Weight: -443 Moment: -198

Chapter 4

REFERENCE DATA

4.1. General. This chapter contains reference data to assist personnel in load planning.

4.2. Emergency Exits and Safety Aisles. Load the aircraft in such a manner that the following emergency exits and safety aisles are available:

4.2.1. At least one cabin emergency exit is unobstructed.

*4.2.2. Access to the latrine facility requires an 18-inch clear area on the forward right side of the cargo loaded on ramp.

*4.2.3. On all missions, cargo will be loaded in such a way that the crew will have access to the rear of the aircraft.

4.3. Special Requirements. Although deviations to the basic configuration are authorized to meet special requirements, the following factors should be considered:

NOTE: Maximum amount of ammo that can be stowed in Ammo Storage & Handling System (ASHS):
3000 - 25mm
256 - 40mm (additional 40mm may be stored in G - H compartments).
100 - 105mm

4.3.1. Cargo ramp is limited to 3399 pounds cargo weight with life support bin, spare fluids bin, miscellaneous equipment bin, and floor-mounted seats installed. At no time will the ramp weight exceed 5000 pounds to include cargo weight and any installed equipment.

***4.4. Miscellaneous Data.** The following tables are provided to aid in configuration planning, weight and balance:

*4.4.1. Table 4.1. Standard Weights

*4.4.2. Table 4.2. Munitions Packages

Table 4.1. Standard Weights.

Crew:	**Weight/lbs.**
Crew (including professional gear)	200
Tiedown equipment	
Strap CGU-1/B (5000 lb.)	4
MB-1 chain/CGU-4/E	7
MB-1 device/CGU-4/E	3.5
MB-2 chain/CGU-3/E	20
MB-2 device/CGU-3/E	6
Additional equipment	
Anti-exposure suits	6
Auxiliary ground loading ramp	80
Bin, life support (empty)	230
Bin, miscellaneous (empty)	107
Bin, spare fluids (empty)	56
Brass bags, (40mm) 1 set	30
Clearing tool, (PVC)	50
Closeout panel, 25mm	6
Closeout panel, 40mm	7
Closeout panel, 105mm	29
Emergency escape breathing device (EEBD)	3
Emergency radio	2
Emergency rations (case)	37
Flare, pistol, MK-50	3
Global sled, (A-16)	222
Gun box w/contents	80
Hot cup	3
Hydraulic fluid (case)	52
Ladder, maintenance	42
Life raft (20 member), (2 ea.)	294
Liquid container w/o contents	17
Liquid container w/contents (2 gal)	25
Litter, wooden/canvas	14
LPU-10 life vest	4
MAU-12	69
Marker location marine MK 25, Mod 3	3.75
Marker location ground/land MK 6, Mod 3	16
Mattress, foam w/cover	10
Multiple ejector rack (MER) (2ea.)	328

ML-4 seat kit	21
Oil (case)	52
Oxygen bottle, portable with harness	6
Parachute (chest)	16
Parachute harness (chest)	13
Pod (ECM) ALQ-131 (2ea.)	1430
Pod (IR) QRC 84-02A	235
Protective clothing kit	40
Quick don mask	2.5
Rails, IR shields, inboard (2)	194
Rails, IR shields, outboard (2)	263
Restraint harness w/safety strap	9
Sea marker light w/battery, matrix Light	4/1
Seat, double/belts, CRC	118
Seat, double, floor plate, CRC	36
Seat, crash, ramp	33
Shield, IR engine	373
Smoke mask	3
Static display equipment	100
Survival vest	9
Tool kit, (AG)	9
Tool kit, (LM)	16
Water container (small Igloo w/contents)	25
Water container (large Igloo w/contents)	50
25mm	1.1
40mm	4.875
105mm	43
105mm clearing round (box of 2)	27
LUU-2/B, LW-4/B Parachute flares	29/17
MJU-7 Flare (1x2)	0.333
MK-206 Flare (1x1)	0.333
MK-25 Marker, marine	3.75
RR-170/188 Chaff	0.643

Table 4.2. Munitions Packages.

	T-1	**T-2**	**T-3**	**P-1**	**P-2**	**P-3**	**D-1**	**D-2**	**C-1**
105mm									
HE M1 C432 PD/Delay	20	12	20	12	12	12	20	10	45
HE M1 C430 Proximity	0	8	0	8	8	8	0	10	45
WP M60 C433	0	5	0	0	0	0	0	0	10
Cartridge, clearing	2	2	2	2	2	2	2	2	2
40mm									
HEIP	96	96	96	80	80	80	96	144	256
AP/APT	0	32	0	0	0	0	0	0	0
25mm									
HEI*	500	500	500	500	500	500	0	0	0
HEI PGU-38U	0	0	0	0	0	0	500	1000	3000
Chaff/Flares									
Chaff	0	0	0	0	0	360	0	0	360
Flare, decoy	0	0	240	0	240	240	0	240	240
MK-25 Marker, marine	0	0	0	0	0	0	0	0	24
Total Load Weight:	1906	2277	2034	1828	1956	2184	1906	2818	9325
Total Load Moment/1000:	1116	1358	1180	1067	1131	1285	1116	1551	5319
Expendable Weight:	1289	1559	1361	1244	1316	1460	1289	1794	6418
Expendable Moment/1000:	774	951	810	745	781	878	774	1016	3797

NOTE: Munitions packages may be modified as required to meet mission directives.

* PGU-25U or PGU-38U/23U mix

T = Training
P = Proficiency
D = Demonstration
C = Combat

Chapter 5

DD FORM 365-4 (TACTICAL) INSTRUCTIONS

5.1. Introduction. This chapter provides instructions for computation and completion of DD Form 365-4, (Weight and Balance Clearance Form F). The Form F will be computed using simplified moments. All entries and signatures must be legible.

***5.2. Load Planning**. The ammo and cargo load must be planned so that the center of gravity of the loaded aircraft will be within the specified forward and aft limits for any given operating condition. Consideration must also be given to ammo expended, offload sequence, aircraft limitations, and emergency jettisoning. Math, charts contained in T.O. 1C-130(A)U-1, and aircraft load adjuster (slip-stick) are tools which may be used for load planning.

***5.3. General Instructions.** These instructions apply to Forms F using simplified moments. Entries on the form may be either typed, handwritten, or computer entered.

5.3.1. Heading. Enter date, mission number, aircraft type, serial number, departure and destination station (name or ICAO identifier), home station of the aircraft and pilot's rank and last name.

5.3.2. Limitations column. Enter appropriate weight and CG limits for the planned mission using the following criteria: The maximum gross weight and center of gravity limits specified in T.O. lC-130(A)U-l will not be exceeded. Gross weight may also be limited by operating conditions; e.g., obstacle clearance, rate of climb, weather conditions, altitude, runway/taxiway bearing capacity, or any other published restrictions. The pilot/flight engineer will inform the loadmaster of any gross weight restrictions prior to mission planning.

5.3.2.1. Gross Wt. Takeoff and Landing. Use 155,000 lbs. unless other restrictions are imposed.

5.3.3. Permissible CG Takeoff and Landing. Compute the forward and aft center of gravity limitations using the center of gravity table in T.O. lC-130(A)U-5.

5.3.4. Signature blocks:

5.3.4.1. Computed by: Signature, rank, and organization.

5.3.4.2. Weight and balance authority: Leave blank

5.3.4.3. Pilot: Signature

5.4. Instructions for Moment Form F. Use T.O. lC-130(A)U-5, Chart E.

5.4.1. Reference 1. Enter basic weight and moment from the last entry of the certified copy of DD Form 365-3 (Chart C) in the aircraft weight and balance handbook.

5.4.2. Reference 2. Leave blank.

5.4.3. Reference 3. Enter the item description, number, weight and moment of all non-expendable items not in the basic weight, such as crewmembers, baggage, emergency and tactical equipment, etc.

5.4.4. Reference 4. Total of references 1 thru 3.

*5.4.5. Reference 5. For non-standard munitions packages, enter the type of rounds, number of rounds/flares/chaff, weight and moment. For standard munitions packages, reference the type of package (T-l, P-2, C-1, etc.), and enter the total weight and moment for the entire package.

*5.4.6. Reference 6. Leave blank.

*5.4.7. Reference 7. Enter total fuel on board at takeoff and determine moment using fuel moment chart or the alternate method.

***NOTE**: In remarks section, enter a breakdown by tank of takeoff and landing fuel weight to the nearest 100 pounds, and moments using the fuel moment chart contained in T.O. 1C-130(A)U-5. An alternate method of computing fuel moments is accomplished by multiplying the total fuel by .552. In this instance, show only the total fuel weight and moment for takeoff and landing. Takeoff fuel is 1,000 pounds less than ramp fuel (subtract 1,000 lbs. from the external/auxiliary tanks). This is the fuel used for engine start, taxi and ammo loading.

5.4.8. Reference 8. Leave blank

5.4.9. Reference 9. Total of references 4 thru 8.

5.4.10. Reference 10. Enter the takeoff CG in percent of MAC.

NOTE: References 11, 12, and 13 will be left blank if corrections are not required.

5.4.11. Reference 11. When applicable, enter correction from computations in the corrections block.

5.4.12. Reference 12. Total of reference 9 and 11, as required.

5.4.13. Reference 13. Enter corrected CG in percent of MAC, as required.

5.4.14. Reference 14. Enter the takeoff fuel weight and moment from reference 7, and the weight and moment of all expendable items (ammo, MKs, flares, and chaff). Consider all MKs, flares, and chaff as being expended.

*5.4.15. Reference 15. Enter estimated landing fuel weight and moment, obtained by determining estimated fuel burn off (FBO) subtracted from total mission fuel. Moment can be determined by using fuel charts in T.O. 1C-130(A)U-5, or by multiplying the total fuel on board by .552.

*5.4.16. Reference 16. Determine the estimated landing condition by subtracting the fuel and expendables weight and moment of reference 14 from the takeoff condition (reference 9 or 12), then adding reference 15.

5.4.17. Reference 17. Enter estimated landing C/G in percent of MAC.

*5.4.18. Remarks Section. In addition to takeoff/landing fuel breakdown, enter all air refueling (AR) and FBO.

5.4.18.1. AC-130U standard FBO rate is 6,000 pounds per hour.

*5.4.18.2. AR will be the weight of anticipated AR fuel onload.

*5.4.18.3. FBO for the entire mission is computed by multiplying the standard FBO rate by the estimated flying time. Air Refueling missions are computed in the following manner:

Total AR fuel weight is added to the takeoff fuel.
FBO weight is subtracted from the combined takeoff fuel and AR total.
*Estimated landing fuel (ELF) is the sum of takeoff fuel, AR, and the subtracted FBO.

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